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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/731,884	12/09/2003	Nitin Bansal	64476-00004USPX	6718
23932	7590	12/16/2004	EXAMINER	
JENKENS & GILCHRIST, PC 1445 ROSS AVENUE SUITE 3200 DALLAS, TX 75202			LAXTON, GARY L	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,884

Applicant(s)

BANSAL, NITIN

Examiner

Gary L. Laxton

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2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, line 4, recites "couple it to the output", it is unclear what "it" is. Does the applicant mean couple the output to the differential circuit or couple something else? The

applicant assumes the output of the regulator is coupled to the differential amplifier. Claims 2-4 inherit the same.

Claim 1, line 9, recites "current passing through it", it is unclear what limitation "it" is referencing.

Claim 1 recites the limitation "the difference voltage amplifier" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites "its" in line 4, it is unclear what the applicant is attempting to reference by this limitation.

Claim 5 recites the limitation "the apparently sensed regulator output voltage" in line 10. There is insufficient antecedent basis for this limitation in the claim. Claim 6 inherits the same.

Claim 6 recites "the sensed regulator output voltage regulator" [sic].

Claim 7 recites the limitation "one branch of the differential amplifier" in line 6. There is insufficient antecedent basis for this limitation in the claim. Claims 8-11 inherit the same.

Claim 12 recites the limitation "a first current path" in line 8. There is insufficient antecedent basis for this limitation in the claim. It is unclear if this is the same current path recited in lines 4-5 or if this is a separate and distinct current path.

Claim 13 recites, lines 8 and 9, "overriding the sensing of the output regulated voltage to sense an apparent, higher, voltage." This limitation is vague and indefinite. It is unclear what the applicant is trying to claim.

Claim 14 has similar issues in lines 6-8. It is unclear what the applicant is trying to claim. Claim 15 inherits the same.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 12-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Miyanaga et al (US 6,822,428).

With the claim language being difficult to understand, as noted above, the rejections are made with the best understanding of the intent of the claims, thereby it is considered that Miyanaga et al anticipates the claims.

Miyanaga et al discloses sensing an output regulated voltage; comparing the output regulated voltage to a reference voltage; controlling the output voltage through negative feedback; sensing a current associated with the output voltage; comparing the sensed current to a reference current; if the sensed current exceeds the reference current, then overriding the sensing of the output regulated voltage.

Allowable Subject Matter

6. Claims 1-11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

7. Claim 15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

Claims 1-4; prior art fails to disclose or suggest, inter alia, a low dropout voltage regulator comprising a current sense transistor coupled to a series pass transistor using current mirroring to monitor the current; a reference current source coupled to the output of the current sense transistor; and a junction of the current sense transistor and the reference current source being connected to the difference voltage amplifier in a manner that increases an apparently sensed output voltage as the current through the current sense transistor exceeds the reference current value.

Claims 5 and 6; prior art fails to disclose or suggest, inter alia, a method for improving current limiting in an integrated low Drop Out comprising: receiving a reference voltage at a first input of a difference voltage amplifier; sensing a regulator output voltage; applying the sensed regulator output voltage to a second input of the difference voltage amplifier in a manner that provides negative feedback; sensing current passing through the regulator output; comparing the sensed current to a reference current; and controlling operation of the difference voltage amplifier in a manner that increases the sensed regulator output voltage if the sensed current exceeds the reference current.

Claims 7-11; prior art fails to disclose or suggest, inter alia, a low drop-out voltage regulator, comprising: a differential amplifier stage including; and a current control transistor coupled the differential amplifier; and an output stage including: a pass transistor coupled between a regulator input and the regulator output and controlled by an output of the differential amplifier; and a current sensing transistor coupled between the regulator input and the current control transistor of the differential amplifier.

Claim 15; prior art fails to disclose or suggest, inter alia, a regulator comprising differential amplifier including first and second mirrored current paths, a current flowing in the first current path being controlled by the output regulated voltage, and a current flowing in the second current path controlling the sensed output regulated voltage to substantially match the reference voltage; an override circuit coupled to the first current path and responsive to the feedback control circuit to maintain current flowing in the first current path as the output regulated voltage decreases.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,664,773 Cunnac et al discloses a voltage mode regulator with current mode startup; US 6,407,537 Antheunis discloses a voltage regulator with current limiter; US 5,539,603 Bingham discloses current protection for a low dropout voltage regulator.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L. Laxton whose telephone number is (571) 272-2079. The examiner can normally be reached on Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2084. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Gary L. Laxton
Patent Examiner
Art Unit 2838

12/13/04